The Flora of Ukiah Valley,

I n a former article (vol. ix, p. 482) I touched upon the geological formation of Ukiah Valley, and stated that Ukiah Valley was once a lake, not in the distant past, but so recently that its extinction cannot date back more than a hundred years. Nearly all of the oblong or round valleys, common in the Coast Range north of San Francisco Bay, are also the beds of lakes. Northward of Ukiah several valleys on Eel River still contain the remnants of the lakes at the lower end. East of Ukiah lies Clear Lake, quite a large body of water, and at its north end Sale Lake is a vivid illustration of the process by which so many other lakes have been extinguished. This is a lake of considerable size, so much shoaled by deposits that the waves cover nearly the entire surface, and inpouring streams are rapidly filling it on the sides. Such a lake once covered Ukiah Valley. Swift-coursing streams poured from the steep mountains about and carried great quantities of debris. The prevailing formation is sandstone and shale, which rapidly disintegrates, and the slopes are so steep that erosion is rapid. Deltas of gravel or clay were formed where the streams deployed into the valley. Those formed when the lake was highest are the high bench lands about the bases of the mountains. Lower benches were formed in succession as the lake receded, and when at last the valley was dry, it was drained by the course of an alluvial process on one hand, and the cutting down of the outlet on the other, the larger streams cut through their earlier formation, making rich vales, while the smaller streams deployed over the mud flats and carried rich deposits of mud, fine gravel and leaves to form the black gravel lands of to-day. This latter process is rapidly going on even now. At the final ending of the lake the extinction of the beaver and the burning of their dams bade no small part. Along the large streams alluvial deposits were made, gradually raising the land next them to a little above the height of the lower valley between the rivers and the benches.

In our beautiful valley each formation has its flora. The trees and shrubs on the higher benches vary according to the soil. Most of the benches were in woods, especially where the formation was a deep gravelly one. Some extensive benches were formed by the large creeks rising in the Chemux-covered mountains. These are a very deep poor gravel, and are for nearly all of the trees and shrubs and many of the plants characteristic of the Chemux region. More frequently, however, the uplands were clothed with a fine growth of timber, among which the Black Oak, the Post Oak (Quercus Douglasii), the Douglas Spruce and the Madronia predominated. There were large trees in the valley and a wealth of flowers beneath. Since I have known these uplands there has been a considerable change, as many of young Madroñas, both seedlings and clumps of sprouts from older stumps, of Manzanita and of Oaks. The Douglas Spruce, too, are mostly young trees. I have no doubt that previous to the settlement by the whites almost annual grass fires, set by Indians, kept this small growth down, and that the woods then were quite open. Along the river banks, and covering almost the entire alluvial deposit, was another strip of woodland which has now largely given way to orchards, Hop fields and Alfalfa. Sections still remain thickly clothed with White Oaks, Quer cus lobata, Ash, Laurel, Willows, which are not bushes, but large trees, Box Elder and Cottonwood. Occasional Alders, brought down by the streams from their mountain home, live near the water, and nearer the hills, too, the Oregon Maple. Clematis ligusticfolia and wild Grapes climb to the tops of great trees. Wild Blackberries run riot over bushes, and drench the ground with their juice. May Marah, grows as luxuriantly as the famous Bean-stalk in Jack's romance, for a short while, and hangs thick with its thorny-looking fruits. Here are thickets of wild Roses, Rosa Californica, ten or twelve feet high. Down in the river bed the deposits of sand or gravel harbor many plants of mountain origin, which in their short existence rival their

home brethren. Some of these river beds are a rich field for the flower lover. Late in summer they have their own flora, such as the gorgeous Mentzelia laevicaulis with rich yellow flowers fully as large as the Marah itself. The lands lying between the alluvial belt and the first bench are low and often wet. Few trees grow on them, except scattering White Oaks. Originally they were covered by a dense growth of Grasses and wild Anise, with a multitude of flowering plants, many of them liliaceae. The rich, gravelly deposits were the favorite home for the White Oak, and before the needs of the farmer caused them to be cut they formed open woods for miles in the valley, and nearly all were large trees. In such grounds, too, the Elder is to be found, not the bush of the eastern states, but a tree a foot or more in diameter and twenty or thirty feet high. The flowers and trees of the lower hillsides vary as the soil differs. Those facing south are oftener bare or thinly timbered, and those facing north are usually well wooded. In my article, "A Cano near Ukiah" (vol. ix, p. 482 and 493), I described a prevalent form of growth. The canoens on the east side of the valley differ from those on the west, as I hope to show another time. Carl Purdy.

Garden and Forest.

Foreign Correspondence.

London Letter.

ARISTOLOCHIA GOLDINAKA. Plants of this extraordinary Birthwort have lately flowered in the stoves at Kew. It is a native of Old Calabar, where it occurs abundantly in swampy ground, the large flowers resting on the earth and imregnating the air with their fetid odor for miles around. It has been in cultivation about thirty years, but from the difficulty of inducing it to flower it has never found any favor outside botanical gardens. It differs from the popular, easily grown Aristoloehia Gigas Sturtevantii in having a tuberous rootstock, annual stems, and in the flowers developing on the base of the young growth before the leaves have appeared. During winter the plants should be kept quite dry, and in March they should be saturated with water and placed in the hottest, sunniest position in the stove. The flowers are twenty-six inches long, a foot in diameter, three-lobed and colored chocolate-red with yellow mothlings.

SOLANUM WENDLANDII.—This plant is again magnificent in the Water-lying house at Kew, where it forms a portion of the roof with its straggling stems, bearing numerous clusters of bright purple-blue flowers. Nothing could be handier in the way of a roof-climber for the stove, and no plant gives less trouble to the cultivator when once its requirements are understood. For years it was grown in a pot among the Sweet Peas at an undergraduate exhibition which kept it alive, but never induced it to flower. It was then planted in a shallow border in the porch of the Water-lying house and the shoots trained along the girders of the roof. The bright sunshine and fresh air which it here obtained suited it, and it has flowered freely and continuously every winter since. During winter it is kept quite dry when all the leaves fall off. In February it is pruned to short spurs; the roots are then well soaked with water and top-dressed with manure. These details may help those cultivators who have tried and failed with this grand plant.

UTRICULARIA FOXLANDII. This is the name given by Messrs. F. Sander & Co. to an exceptionally strong-growing, large-flowered variety of the Brazilian Utricularia longifolia, which they have recently imported and which has flowered freely this spring in their nursery. The stems creep as in the well-known U. montana, and from them spring numerous long-tubular flowers. The leaves are about a foot long. The flower-spikes are erect, two feet or more high, each bearing from twelve to twenty flowers, which are two inches across and of a rich violet-blue color with a blotch of orange-yellow on the boss-like cushion at the base of the lip. The flowers last about a week, and Messrs. Sander & Co. have had plants continuously in bloom for